

REMARKS

The Applicants respectfully request further examination and consideration in view of the arguments set forth fully below. Claims 1-39 were previously pending in this application. Within the Office Action, Claims 1-39 have been rejected. By the above amendment, Claims 1, 3 and 8 have been amended and Claims 2 and 9 have been canceled. Accordingly, Claims 1, 3-8 and 10-39 are currently pending.

Rejection Under 35 U.S.C § 112

Within the Office Action, Claims 8-18, 19-28 and 29-39 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. With regards to Claim 8 it is stated within the Office Action that it is not clear if the Applicant considers the ability of IEEE 1394 to operate in asynchronous and isochronous modes as constituting two different protocols. The modified hub device of Claim 8 comprises a first interface configured for coupling to and communicating with one or more of a first type of device operating according to a first protocol and a second protocol and a second interface configured for coupling to and communicating with one or more of a second type of device operating according to only the second protocol. It is taught within the present specification that

[t]ogether, the ethernet switch 20 and the MHubs 30, 40, 50 and 60 allow both IEEE 1394-2000 devices and ethernet devices to coexist within the same network. The IEEE 1394-2000 devices are able to communicate with other devices in the network using both isochronous streams and asynchronous data packets. The ethernet devices are able to communicate with other devices in the network using standard asynchronous data packets. [Present Specification, page 17, lines 21-25]

In Claim 15, which is dependent on Claim 8, it is further specified that the first protocol is isochronous and the second protocol is asynchronous. Accordingly, for at least these reasons, Claim 8 is definite and does particularly point out and distinctly claim the subject matter which applicants regard as the invention.

With regards to Claims 19 and 29, it is stated within the Office Action that it is not clear whether the Applicants are referring to different traffic modes as different protocols or not. Both Claims 19 and 29 specify that interfaces are provided to one or more of a first type of device

operating according to a first protocol and a second protocol and one or more of a second type of device operating according to only the second protocol. As described above, it is taught within the present specification that

[t]ogether, the ethernet switch 20 and the MHubs 30, 40, 50 and 60 allow both IEEE 1394-2000 devices and ethernet devices to coexist within the same network. The IEEE 1394-2000 devices are able to communicate with other devices in the network using both isochronous streams and asynchronous data packets. The ethernet devices are able to communicate with other devices in the network using standard asynchronous data packets. [Present Specification, page 17, lines 21-25]

Further, in Claim 25, which is dependent on Claim 19, and Claim 36, which is dependent on Claim 29, it is further specified that the first protocol is isochronous and the second protocol is asynchronous. Accordingly, for at least these reasons, Claims 19 and 29 are definite and do particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Rejection Under 35 U.S.C § 102

Within the Office Action, Claims 1, 4, 5 and 7 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application No. 2002/0069417 to Kliger et al. (“Kliger”). Kliger teaches a home network system and method. As recognized within the Office Action, Kliger fails to teach a method wherein devices of the first type and devices of the second type communicate with each other within the network. This limitation has been added into the independent Claim 1 by the above amendment. Within the Office Action, U.S. Patent No. 6,324,178 to Lo et al. (“Lo”) has been cited for the purpose of the devices of different types communicating with each other. For the reasons discussed below, the combination of Kliger and Lo is not proper.

In contrast to the teachings of Kliger, the combined IEEE 1394-2000 and ethernet network of the present invention allows devices on the network to operate according to both the IEEE 1394-2000 protocol and the ethernet protocol. The devices within the network are able to send IEEE 1394-2000 isochronous data, IEEE 1394-2000 asynchronous data and ethernet data. Both IEEE 1394-2000 and ethernet devices within the network are coupled to modified hubs (MHubs) to form a local cluster. The MHubs are coupled to an ethernet switch which controls communications between devices in different local clusters. The ethernet switch and the MHubs

obey an isochronous interval in which all isochronous data transfers will be allowed. Preferably, on a regular and reoccurring period, the ethernet switch sends an isotick signal to begin the isochronous interval. Alternatively, clocks at all nodes within the network are synchronized to start and stop the isochronous interval at the same time without the need for any one device to transmit the isotick signal. Any bandwidth left after the isochronous interval is then allocated to the traditional ethernet traffic and the IEEE 1394-2000 asynchronous traffic, until the start of the next isochronous interval. As described above and recognized within the Office Action, Kliger fails to teach a method wherein devices of the first type and devices of the second type communicate with each other within the network.

The independent Claim 1 is directed to a method of transmitting data within a network including one or more of a first type of device operating according to a first protocol and a second protocol and one or more of a second type of device operating according to only the second protocol, wherein devices of the first type and devices of the second type communicate with each other within the network. The method of Claim 1 comprises establishing a periodic cycle including a first portion and a second portion, allowing only transmissions according to the first protocol during the first portion and allowing only transmissions according to the second protocol during the second portion. As described above and recognized within the Office Action, Kliger fails to teach a method wherein devices of the first type and devices of the second type communicate with each other within the network. For at least these reasons, the independent Claim 1 is allowable over the teachings of Kliger.

Claims 4, 5 and 7 are dependent on the independent Claim 1. As discussed above, the independent Claim 1 is allowable over the teachings of Kliger. Accordingly, the Claims 4, 5 and 7 are all also allowable as being dependent on an allowable base claim.

Rejection Under 35 U.S.C § 103

Within the Office Action, Claims 2, 3 and 6 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kliger in view of Lo. The Applicants respectfully disagree. As discussed above, Kliger teaches a home network system and method. As described above and recognized within the Office Action, Kliger fails to teach a method wherein devices of the first type and devices of the second type communicate with each other within the network. Lo is cited for this proposition. Lo teaches a method for efficient data transfers between domains of differing data formats. Kliger clearly teaches away from devices of a first type and devices of a second type communicating with each other within the network. Specifically, Kliger teaches that

[i]n one embodiment, devices 33 in different rooms of the same local bus type (e.g., 1394) can communicate with each other over the backbone 20, whereas devices 33 of different local bus types (e.g., 1394 and USB) do not. [Kliger, ¶ 45]

For at least reasons, the combination of Kliger and Lo is improper, as Kliger clearly teaches away from devices of one type communicating with devices of another type. Accordingly, the rejection of claims based on the combination of Kliger and Lo should be withdrawn.

Within the Office Action, Claims 8, 9 and 11-18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,747,979 to Banks et al. (“Banks”) in view of U.S. Patent No. 6,772,267 to Thaler et al. (“Thaler”) and U.S. Patent No. 6,023,211 to Hewitt (“Hewitt”). Banks teaches a method and apparatus for bridging between networks. As recognized within the Office Action, Banks does not teach a bridge or hub that is connected to and communicating with a switch device. Thaler teaches a multi-portal bridge for providing network connectivity. As recognized within the Office Action, neither Banks nor Thaler teach a switching device that sends a periodic signal which signals the start of a period having a first portion and a second portion. Hewitt appears to be cited for this proposition.

Hewitt teaches a method of mode control in a bus optimized for personal computer data traffic. Within the Office Action it is described that periodic signals sent to start different cycles are shown in Table 2 of Hewitt. The Applicants respectfully disagree. Hewitt does not teach that the bus messages in Table 2 are periodic. Hewitt also does not teach that these signals are sent by a switching device. Accordingly, neither Banks, Thaler, Hewitt nor their combination teach a switching device that sends a periodic signal which signals the start of a period having a first portion and a second portion.

In contrast to the teachings of Banks, Thaler, Hewitt and their combination, the combined IEEE 1394-2000 and ethernet network of the present invention allows devices on the network to operate according to both the IEEE 1394-2000 protocol and the ethernet protocol. The devices within the network are able to send IEEE 1394-2000 isochronous data, IEEE 1394-2000 asynchronous data and ethernet data. Both IEEE 1394-2000 and ethernet devices within the network are coupled to modified hubs (MHubs) to form a local cluster. The MHubs are coupled to an ethernet switch which controls communications between devices in different local clusters. The ethernet switch and the MHubs obey an isochronous interval in which all isochronous data transfers will be allowed. Preferably, on a regular and reoccurring period, the ethernet switch sends an isotick signal to begin the isochronous interval. Any bandwidth left after the

isochronous interval is then allocated to the traditional ethernet traffic and the IEEE 1394-2000 asynchronous traffic, until the start of the next isochronous interval. As described above, neither Banks, Thaler, Hewitt nor their combination teach a switching device that sends a periodic signal which signals the start of a period having a first portion and a second portion.

The independent Claim 8 is directed to a modified hub device configured for coupling between two or more devices operating according to two or more different protocols and a switching device, wherein devices of the first type and devices of the second type communicate with each other. The hub device of Claim 8 comprises a first interface configured for coupling to and communicating with one or more of a first type of device operating according to a first protocol and a second protocol, a second interface configured for coupling to and communicating with one or more of a second type of device operating according to only the second protocol and a third interface configured for coupling to and communicating with the switching device, wherein the switching device sends a periodic signal which signals the start of a period having a first portion and a second portion, wherein only communications in the first protocol are allowed during the first portion and only communications in the second protocol are allowed during the second portion. As described above, neither Banks, Thaler, Hewitt nor their combination teach a switching device that sends a periodic signal which signals the start of a period having a first portion and a second portion. For at least these reasons, the independent Claim 8 is allowable over the teachings of Banks, Thaler, Hewitt and their combination.

Claims 9 and 11-18 are dependent on the independent Claim 8. As discussed above, the independent Claim 8 is allowable over the teachings of Banks, Thaler, Hewitt and their combination. Accordingly, the Claims 9 and 11-18 are all also allowable as being dependent on an allowable base claim.

Within the Office Action, Claim 10 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Banks in view of Thaler and Hewitt and further in view of Lo. Claim 10 is dependent on the independent Claim 8. As discussed above, the independent Claim 8 is allowable over the teachings of Banks, Thaler, Hewitt and their combination. Accordingly, the Claim 10 is also allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 19-30 and 32-39 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,690,668 to Szczepanek et al. ("Szczepanek") in view of Banks and Hewitt. The Applicants respectfully disagree. The combination of Szczepanek with Banks and Hewitt is improper. According to MPEP §2145 X. (2) References Cannot Be Combined Where Reference Teaches Away from Their Combination. "It is improper

to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743. In the present situation, that is exactly what is being done. Szczepanek teaches that network switching systems for use in an Ethernet network are disclosed. Szczepanek does not teach or suggest that the switching systems could be used to couple devices operating under different protocols. Accordingly, Szczepanek should not be combined with Banks and Hewitt.

Furthermore, under MPEP §2143.01, “the proposed modification cannot change the principle of operation of a reference.” Modifying Szczepanek to operate with different types of networks or different protocols, changes the operation of Szczepanek which teaches network switching systems for use in an Ethernet network. Thus, the combination of Szczepanek with Banks and Hewitt is improper.

As also discussed above, Hewitt does not teach that the bus messages in Table 2 are periodic. Hewitt also does not teach that these signals are sent by a switching device. Accordingly, neither Szczepanek, Banks, Hewitt nor their combination teach a switching device that sends a periodic signal which signals the start of a period having a first portion and a second portion.

In contrast to the teachings of Szczepanek, Banks, Hewitt and their combination, the combined IEEE 1394-2000 and ethernet network of the present invention allows devices on the network to operate according to both the IEEE 1394-2000 protocol and the ethernet protocol. The devices within the network are able to send IEEE 1394-2000 isochronous data, IEEE 1394-2000 asynchronous data and ethernet data. Both IEEE 1394-2000 and ethernet devices within the network are coupled to modified hubs (MHubs) to form a local cluster. The MHubs are coupled to an ethernet switch which controls communications between devices in different local clusters. The ethernet switch and the MHubs obey an isochronous interval in which all isochronous data transfers will be allowed. Preferably, on a regular and reoccurring period, the ethernet switch sends an isotick signal to begin the isochronous interval. Any bandwidth left after the isochronous interval is then allocated to the traditional ethernet traffic and the IEEE 1394-2000 asynchronous traffic, until the start of the next isochronous interval. As described above, the combination of Szczepanek, Banks and Hewitt is not proper. As also described above, neither Szczepanek, Banks, Hewitt nor their combination teach a switching device that sends a periodic signal which signals the start of a period having a first portion and a second portion.

The independent Claim 19 is directed to a switching device configured for coupling to two or more hub devices providing interfaces to one or more of a first type of device operating according to a first protocol and a second protocol and one or more of a second type of device operating according to only the second protocol. The switching device of Claim 19 comprises a plurality of ports, each port coupled to a corresponding hub device for interfacing with devices coupled to the corresponding hub device and a control circuit coupled to the plurality of ports for sending a periodic signal which signals the start of a period having a first portion and a second portion, wherein only communications in the first protocol are allowed during the first portion and only communications in the second protocol are allowed during the second portion. As described above, the combination of Szczepanek, Banks and Hewitt is not proper. As also described above, neither Szczepanek, Banks, Hewitt nor their combination teach a switching device that sends a periodic signal which signals the start of a period having a first portion and a second portion. For at least these reasons, the independent Claim 19 is allowable over the teachings of Szczepanek, Banks, Hewitt and their combination.

Claims 20-28 are dependent on the independent Claim 19. As discussed above, the independent Claim 19 is allowable over the teachings of Szczepanek, Banks, Hewitt and their combination. Accordingly, the Claims 20-28 are all also allowable as being dependent on an allowable base claim.

The independent Claim 29 is directed to a network of devices comprising a switching device and a plurality of modified hub devices. The switching device of Claim 29 includes a plurality of ports and a control circuit coupled to the plurality of ports for sending a periodic signal which signals the start of a period having a first portion and a second portion, wherein only communications in a first protocol are allowed during the first portion and only communications in a second protocol are allowed during the second portion. The plurality of modified hub devices of Claim 29 each include a first interface configured for coupling to and communicating with one or more of a first type of device operating according to the first protocol and the second protocol, a second interface configured for coupling to and communicating with one or more of a second type of device operating according to only the second protocol and a third interface coupled to a corresponding one of the plurality of ports. As described above, the combination of Szczepanek, Banks and Hewitt is not proper. As also described above, neither Szczepanek, Banks, Hewitt nor their combination teach a switching device that sends a periodic signal which signals the start of a period having a first portion and a second portion. For at least these reasons,

the independent Claim 29 is allowable over the teachings of Szczepanek, Banks, Hewitt and their combination.

Claims 30 and 32-39 are dependent on the independent Claim 29. As discussed above, the independent Claim 29 is allowable over the teachings of Szczepanek, Banks, Hewitt and their combination. Accordingly, the Claims 30 and 32-39 are all also allowable as being dependent on an allowable base claim.

Within the Office Action, Claim 31 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Szczepanek in view of Banks and Hewitt and further in view of Lo. Claim 31 is dependent on the independent Claim 29. As discussed above, the independent Claim 29 is allowable over the teachings of Szczepanek, Banks, Hewitt and their combination. Accordingly, the Claim 31 is also allowable as being dependent on an allowable base claim.

For the reasons given above, Applicants respectfully submit that all of the pending claims are now in condition for allowance, and allowance at an early date would be greatly appreciated. Should the Examiner have any questions or comments, he is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
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